dup

CIRCULAR OF THE
SCHOOL FOR
HEALTH OFFICERS

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HARVARD UNIVERSITY AND THE MASSACHUSETTS
INSTITUTE OF TECHNOLOGY

CATALOGUE

AND

ANNOUNCEMENT

1915-16

PUBLISHED BY THE
SCHOOL FOR HEALTH OFFICERS
240 LONGWOOD AVENUE, BOSTON, MASS.
1915

SCHOOL FOR HEALTH OFFICERS

OF

HARVARD UNIVERSITY AND THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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CALENDAR

1915

Sept. 25, Saturday . . . Last Day for Registration and Presentation of Schedule of Courses for Approval.

Sept. 27, Monday . . . **First Term begins.** Payment of first instalment of the tuition fee is required on or before this date.

Oct. 12, Tuesday . . . . . Columbus Day.

Nov. 25, Thursday . . . . . Thanksgiving Day.

Dec. 23–29, Thursday to Wednesday . M.I.T. Christmas Recess.

Dec. 23–Jan. 3, Tuesday to Monday . Harvard Christmas Recess.

1916

Jan. 31–Feb. 5, Monday to Saturday . M.I.T. Recess.

Feb. 1, Tuesday . . . **Second Term begins.** Payment of second instalment of the tuition fee is required on or before this date.

Feb. 22, Tuesday . . . . . Washington's Birthday.

Apr. 16–22, Sunday to Saturday . . Harvard Recess.

Apr. 19–22, Wednesday to Saturday . M.I.T. Recess.

May 30, Tuesday . . . . . Memorial Day.

THE SCHOOL FOR HEALTH OFFICERS

ABBOTT LAWRENCE LOWELL, LL.D., Ph.D., *President of Harvard University.*

RICHARD COCKBURN MACLAURIN, LL.D., Sc.D., *President of the Massachusetts Institute of Technology.*

The names of the Administrative Officers and Governing Boards of Harvard University will be found in the Official Register of Harvard University; and of the Administrative Officers and Governing Boards of the Massachusetts Institute of Technology, in the Official Bulletin of the Massachusetts Institute of Technology.

MILTON J. ROSENAU, M.D., A.M., *Director.*

ADMINISTRATIVE BOARD

WILLIAM T. SEDGWICK, Sc.D., *Chairman.*
MILTON J. ROSENAU, M.D., A.M.
GEORGE C. WHIPPLE, S.B., *Secretary.*

OFFICE HOURS

The office of the School for Health Officers is at the office of the Director, Professor ROSENAU, Harvard Medical School, Building II, Room 238, 240 Longwood Avenue, Boston, where the business of the School is conducted.

The office of the Chairman, Professor SEDGWICK, is at the Henry L. Pierce Building, Massachusetts Institute of Technology, 30 Trinity Place, Boston.

The office of the Secretary, Professor WHIPPLE, who is also acting as Treasurer, is at Room 212, Pierce Hall, Oxford Street, Cambridge.

GENERAL INFORMATION

The School for Health Officers is conducted by Harvard University and the Massachusetts Institute of Technology, acting in coöperation, through an Administrative Board appointed for this purpose by both institutions.

The principal object of the School is to prepare young men for public health work and especially to fit them to occupy administrative and executive positions, as health officers, or members of boards of health, or secretaries, agents, or inspectors of health organizations. To this end, lectures, laboratory work, and other forms of instruction are offered by both institutions, and by special instructors from national, state, and local health agencies. The subjects embraced in the courses of study have been selected to cover a wide range, including medical, biological, hygienic, and engineering sciences, together with practical health administration.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community fitted to guide and instruct the people in the art of hygienic living; qualified to direct the expenditure of energy, time, and money in public health work into fruitful channels; and able to initiate plans to meet novel conditions as they arise. It is the object of the School for Health Officers to provide the scientific ground work of sanitary knowledge which underlies efficient health administration together with some actual personal acquaintance with the theory and practice of modern public health service of the best types.

The opportunities for the practical study of the arts of public sanitation offered to students of the School for Health Officers are exceptional. The city of Boston is an important port of entry for foreign and domestic shipping and for immigration, and has fifty or more separate and independent municipalities in its immediate vicinity, while the state of Massachusetts is a community which has long been recognized as standing in the forefront of American commonwealths in all aspects of the science and practice of public health. To the advantages of location are added the resources of Harvard University and the Massachusetts Institute of Technology.

REQUIREMENTS FOR ADMISSION

Graduates in Medicine of Harvard University and other recognized medical schools will be admitted to the School for Health Officers upon their records and registered as candidates for the Certificate in Public Health. Bachelors of Science in Biology and Public Health of the Massachusetts Institute of Technology* and other recognized institutions will likewise be admitted and registered as candidates for the certificate.

Bachelors of Science in Sanitary Engineering of the Massachusetts Institute of Technology and other recognized institutions, who lack the necessary preparation in medical and other sciences, will be admitted to the School upon their records, but as a rule will be required to spend at least one year in preparation before being accepted as candidates for the Certificate in Public Health.

Other graduates of colleges or technical or scientific schools will be admitted to the School without examination, provided their collegiate courses have included adequate instruction in physics, chemistry, biology, French and German; but they will be required in general to spend two or more years in preparation before being accepted as candidates for the Certificate in Public Health. Applications for admission to the School will be considered from those who have spent at least two years in a recognized college or technical or scientific school and have pursued satisfactory courses in physics, chemistry, biology, French and German, and also from persons of unusual experience or special qualifications; but such persons will as a rule be required to spend two or more years in preparation before being admitted as candidates for the certificate.

Special students not candidates for the Certificate in Public Health who desire to fit themselves for some special field will be admitted to the School, and may take any course or courses for which they are properly qualified, on approval of the Administrative Board.

While the medical degree is not a prerequisite for the Certificate in Public Health, candidates are advised to obtain the medical degree if possible before specializing in public health work. Experience teaches that preferment for employment and advancement to the higher positions come more readily to those who have a medical degree.

* See p. 104 of the M. I. T. Catalogue, December, 1914.

ADMISSION OF WOMEN

Women are admitted to the School for Health Officers on the same terms as men, and are equally eligible for the Certificate in Public Health. Women are admitted to many of the courses given in the Harvard Graduate School of Medicine, but not to undergraduate courses in the Harvard Medical School. If women require the latter courses they must be obtained elsewhere, preferably before entering the School for Health Officers.

APPLICATION AND REGISTRATION

Application for admission to the School should be made to the Director, and should be accompanied by a full statement of the applicant's qualifications, including his educational history and the studies which he desires to take, together with such certificates from other institutions as the Administrative Board may require.

Each student before being admitted to courses of instruction must register at the office of the Director and obtain a card, which must be presented to his instructors.

Students in the School for Health Officers will be regarded and registered as students both of Harvard University and the Massachusetts Institute of Technology.

SCHEDULE OF COURSES

No uniform curriculum will be required of candidates for the Certificate in Public Health, but each will be required to pursue a schedule of courses to meet his individual needs. Assistance in making up this schedule of studies may be obtained from the members of the Administrative Board or the instructing staff. In general, the choice of studies must be such that the candidate on the completion of his course will have covered in a broad way the knowledge requisite for the varied duties of a public health officer.

To be entitled to the Certificate in Public Health, candidates must have satisfactorily completed courses in the following fundamental subjects: — anatomy, physiology, pathology, biological chemistry, sanitary biology, preventive medicine and hygiene, demography (vital statistics), and sanitary engineering. Inasmuch as the School is conducted and the certificate awarded by Harvard University and the Massachusetts Institute of Technology acting in coöperation, candidates for the Certificate in Public Health will be expected to include in their schedule some courses in both institutions.

On or before the first day of the first term every candidate for the Certificate in Public Health must file with the Director a statement of his proposed schedule of courses in the School, which schedule to be effective must receive the approval of the Administrative Board.

The courses available in the School are not restricted to those stated in this catalogue but may include subjects in any department of Harvard University or the Massachusetts Institute of Technology, provided the work is in harmony with the objects of the School and meets with the approval of the instructor in charge of the course and of the Administrative Board. Certain special courses will be given by instructors not otherwise connected with either institution, and practical work may be taken in city, state, or national health departments or in the hospitals of Boston, but such work must receive special approval in each instance and must be conducted under suitable restrictions.

Each candidate for the Certificate in Public Health is required to complete satisfactorily each course taken by him and, on the completion of his approved schedule, to submit to a general oral examination by the Administrative Board. This examination may cover not only his work in the School but his previous studies and experience. Each candidate is also required to make a sanitary survey of some city or town and submit a report on or before May 10th.

COURSES IN TROPICAL MEDICINE AND HYGIENE

Systematic courses in Tropical Medicine are offered at the Harvard School of Tropical Medicine under the direction of Professor Richard P. Strong. These courses have been included in this catalogue as they are open to properly qualified students in the School for Health Officers.

CERTIFICATE

The Certificate in Public Health (C. P. H.) will be granted to candidates who have satisfactorily completed the studies in their approved schedule, who have spent not less than one academic year in residence, and who have otherwise complied with all requirements. This certificate is issued by Harvard University and the Massachusetts Institute of Technology and signed by the president of each institution and by the members of the Administrative Board.

FEES

The tuition fee for candidates for the Certificate in Public Health and for all other students pursuing regular courses in the School is $250 per year and must be paid in advance as follows: —$150 on or before the first day of the first term, and $100 on or before the first day of the second term. For one half of the school year the fee is $150.

Special students who do not pay the regular fee must pay a special fee for each course.

A deposit of $50 will be required to be made in advance against charges for breakage in the laboratories, and any balance remaining at the end of the year will be returned. There will be no extra laboratory fees for instruction taken in course.

All fees must be paid to Professor Whipple, the acting Treasurer of the School. Checks should be made payable to the School for Health Officers.

OFFICERS OF INSTRUCTION AND LECTURERS

(Arranged alphabetically)

HERMAN M. ADLER, *Assistant Professor of Psychiatry, Harvard University,* and *Chief of Staff, Psychopathic Hospital.*

THOMAS BARBOUR, PH.D., *Curator of Oceanica, and Associate Curator of Reptiles and Amphibians in the Museum of Comparative Zoölogy, Harvard University.*

LOUIS BELL, PH.D., *Consulting Electrical Engineer.*

ROBERT P. BIGELOW, S.B., PH.D., *Associate Professor of Zoölogy and Parasitology, Massachusetts Institute of Technology.*

JOSÉ PENTEADO BILL, A.B., *Assistant in Preventive Medicine and Hygiene, Harvard University.*

CHARLES T. BRUES, S.M., *Assistant Professor of Economic Entomology, Harvard University.*

RICHARD C. CABOT, M.D., *Assistant Professor of Medicine, Harvard University.*

IDA CANNON, *Head Worker, Social Service Department, Massachusetts General Hospital.*

WALTER B. CANNON, A.M., M.D., *George Higginson Professor of Physiology, Harvard University.*

WILLIAM E. CASTLE, PH.D., *Professor of Zoölogy, Harvard University.*

PHILIP CASTLEMAN, M.D., *Director of the Bacteriological Laboratory, Boston Board of Health.*

CHARLES V. CHAPIN, M.D., S.D., *Superintendent, Board of Health, Providence, R. I.*

WILLIAM T. COUNCILMAN, M.D., A.M., LL.D., *Shattuck Professor of Pathological Anatomy, Harvard University.*

DAVID L. EDSALL, A.M., M.D., S.D., *Jackson Professor of Clinical Medicine, Harvard University.*

HAROLD C. ERNST, M.D., *Professor of Bacteriology, Harvard University.*

OTTO FOLIN, S.B., PH.D., *Hamilton Kuhn Professor of Biological Chemistry, Harvard University.*

FRANCIS B. GRINNELL, A.B., M.D., *Instructor in Preventive Medicine and Hygiene, Harvard University.*

SELSKAR M. GUNN, S.B., *Associate Professor of Sanitary Biology and Public Health, Massachusetts Institute of Technology.*

THOMAS F. HARRINGTON, M.D., *formerly Director of the Department of School Hygiene of the City of Boston.*

JOHN B. HAWES, 2D, A.B., M.D., *Secretary, Board of Trustees, Massachusetts Hospital for Consumptives.*

ROBERT N. HOYT, S.B., *Lecturer on Public Health Administration, Massachusetts Institute of Technology.*

EDWARD A. INGHAM, S.B., *Instructor in Biology, Massachusetts Institute of Technology.*

EUGENE R. KELLEY, M.D., *Director of the Division of Communicable Diseases, Massachusetts State Department of Health.*

ROBERT W. LOVETT, A.B., M.D., *Professor of Orthopedic Surgery, Harvard University.*

HERMANN C. LYTHGOE, *Director of the Division of Food and Drugs, Massachusetts State Board of Health.*

ALLAN J. McLAUGHLIN, M.D., *Health Commissioner, Massachusetts State Department of Health.*

GEORGE B. MAGRATH, M.D., *Medical Examiner of Suffolk County.*

FRANK B. MALLORY, A.M., M.D., *Associate Professor of Pathology, Harvard University.*

JOHN L. MORSE, A.M., M.D., *Professor of Pediatrics, Harvard University.*

EDWARD H. NICHOLS, A.M., M.D., *Associate Professor of Surgery, Harvard University.*

JOHN F. NORTON, PH.D., *Assistant Professor of Chemistry of Sanitation, Massachusetts Institute of Technology.*

WINTHROP J. V. OSTERHOUT, PH.D., *Professor of Botany, Harvard University.*

EDWIN H. PLACE, M.D., *Assistant Professor of Pediatrics, Harvard University,* and *Physician-in-Chief, South Department, Boston City Hospital.*

WILLIAM H. POTTER, D.M.D., *Professor of Operative Dentistry, Harvard University.*

SAMUEL C. PRESCOTT, S.B., *Professor of Industrial Microbiology, Massachusetts Institute of Technology.*

MILTON J. ROSENAU, M.D., *Professor of Preventive Medicine and Hygiene, Harvard University.*

M. VICTOR SAFFORD, M.D., *U. S. Public Health Service, Medical Inspector of Immigrants, Boston.*

WILLIAM T. SEDGWICK, PH.D., SC.D., *Professor of Biology and Public Health, Massachusetts Institute of Technology.*

WILSON GEORGE SMILLIE, A.B., M.D., *Instructor in Preventive Medicine and Hygiene, Harvard University.*

ELMER E. SOUTHARD, M.D., A.M., *Bullard Professor of Neuropathology, Harvard University,* and *Director of the Psychopathic Department, Boston State Hospital.*

CHARLES B. SPRUIT, A.B., M.D., *Charles Follen Folsom Teaching Fellow in Hygiene, Harvard University.*

PERCY G. STILES, S.B., PH.D., *Instructor in Physiology and Personal Hygiene, Massachusetts Institute of Technology; Instructor in Physiology, Harvard University.*

RICHARD P. STRONG, PH.B., M.D., S.D., *Professor of Tropical Medicine, Harvard University.*

CLAIR E. TURNER, A.M., *Instructor in Biology, Massachusetts Institute of Technology.*

ERNEST E. TYZZER, M.D., *Assistant Professor of Pathology, Harvard University.*

FREDERICK H. VERHOEFF, A.M., M.D., *Instructor in Ophthalmic Pathology, Harvard University.*

EUGENE WAMBAUGH, A.M., LL.B., LL.D., *Langdell Professor of Law, Harvard University.*

ROBERT DEC. WARD, A.M., *Professor of Climatology, Harvard University.*

ROBERT S. WESTON, S.B., A.M., *Assistant Professor of Public Health Engineering, Massachusetts Institute of Technology.*

WILLIAM M. WHEELER, PH.D., *Professor of Economic Entomology, Harvard University.*

GEORGE C. WHIPPLE, S.B., *Gordon McKay Professor of Sanitary Engineering, Harvard University and Massachusetts Institute of Technology.*

MELVILLE C. WHIPPLE, *Instructor in Sanitary Biology,* and *Sanitary Inspector, Harvard University.*

S. BURT WOLBACH, M.D., *Associate Professor of Bacteriology, Harvard University.*

ALPHEUS G. WOODMAN, S.B., *Assistant Professor of Food Analysis, Massachusetts Institute of Technology.*

LIST OF COURSES ARRANGED BY GROUPS

The courses listed as Regular Courses include those which extend over a half-year or more, or those which demand an equivalent amount of time within a shorter period than a half-year. From these the student is expected to make his principal selections and in them he is expected to do his most serious work. In addition to these regular courses many special courses are open to members of the School.

Attention is called to the fact that some courses may be taken during the summer, thus making it possible for those who desire to do so to carry on their work continuously throughout the year.

REGULAR COURSES

Group I. Preventive Medicine and Sanitary Science

1. Principles of Sanitary Science and Public Health. Professors W. T. Sedgwick and S. M. Gunn 17
2. Preventive Medicine and Hygiene. Professor M. J. Rosenau, and assistants 17
3. Public Health Problems. Professors W. T. Sedgwick and S. M. Gunn 17
4. Epidemiology. Professor W. T. Sedgwick 17
8. Tropical Medicine. Professor R. P. Strong 18

Group II. Personal Hygiene

1. Personal Hygiene. Professor W. B. Cannon 19
2. Personal Hygiene. Dr. P. G. Stiles 20
3. Industrial Hygiene and Sanitation. Professor S. M. Gunn . 20
9. Hygiene of Ventilation and Heating. Professor W. T. Sedgwick 22

Group III. Public Health Administration

1. Public Health Methods 22
2. Practical Health Administration. Dr. Allan J. McLaughlin and associates in the State Department of Health 22
3. Sanitary Law. Professors W. T. Sedgwick, S. C. Prescott, R. S. Weston, and S. M. Gunn 23
7. Municipal Sanitation. Professor S. M. Gunn 24
8. Sanitation of Houses and Public Buildings. Professor S. M. Gunn 24
9. Public Health Administration. Professor S. M. Gunn . . . 24

Group IV. Sanitary Biology and Sanitary Chemistry

1. Protozoölogy. Professor E. E. Tyzzer 24
2. Entomology. Professor W. M. Wheeler and Asst. Professor C. T. Brues 25
3. Advanced Bacteriology. Mr. E. A. Ingham 25
4. Elementary and General Bacteriology. Professors H. C. Ernst and S. B. Wolbach, and assistants 25
5. Dairy Bacteriology. Professor S. C. Prescott 26
6. Bacteriology of Water and Sewage. Professor S. C. Prescott 26
7. Zoölogy and Parasitology. Professor R. P. Bigelow 26
8. Helminthology 26
11. Analysis of Water, Sewage, and Air. Mr. Melville C. Whipple 27
12. Water and Air Analysis. Professor J. F. Norton 27
13. Water Supplies and Waste Disposal. Professor J. F. Norton . 27
15. Food Analysis. Professor A. G. Woodman 28
16. Advanced Food Analysis. Professor A. G. Woodman . . . 28
17. General Bacteriology. Professor S. C. Prescott 28
18. Elementary Bacteriology. Mr. Melville C. Whipple . . . 29

Group V. Special Pathology

1. Pathology of Tropical Diseases. Professor F. B. Mallory . . 29

Group VI. Communicable Diseases

1. Communicable Diseases. Dr. E. H. Place 29
2. Communicable Diseases (Interneship at South Department, Boston City Hospital). Dr. E. H. Place 30
4. Biology of Infectious Diseases. Professor S. M. Gunn . . . 31
5. Board of Health Laboratory Diagnosis. Dr. Philip Castleman 31
6. Public Health Laboratory Methods. Professor S. M. Gunn and associates 31

Group VII. Sanitary Engineering

1. Sanitary Engineering. Professor G. C. Whipple and assistants 32
2. Municipal Administration. Professor G. C. Whipple and assistants 32
3. Research in Sanitation. Professor G. C. Whipple 32
4. Theory and Practice of Water and Sewage Purification. Professor R. S. Weston and Mr. C. E. Turner 32

Group VIII. Demography

1. Vital Statistics. Professor G. C. Whipple and assistants . . 40

SPECIAL COURSES AND LECTURES

Climatology. Professor R. DeC. Ward 28
Genetics and Eugenics. Professor W. E. Castle 18
Infant Mortality. Professor J. L. Morse 18
Legal Medicine. Dr. George B. Magrath 24
Medical Inspection of Aliens. Dr. M. V. Safford 23
Mental Hygiene. Professor E. E. Southard and associates . . . 21
Municipal Sanitation. Dr. C. V. Chapin 23
Ocular Hygiene. Dr. F. H. Verhoeff and Dr. Louis Bell . . 21
Oral Prophylaxis. Professor W. H. Potter 22
Poisonous Plants. Professor W. J. V. Osterhout 27
Posture and Deformities. Professor R. W. Lovett 21
Sanitary Law — Legal Powers of Health Officers. Professor Eugene Wambaugh 23
School Hygiene. Dr. T. F. Harrington 20
Social Service Work. Professor R. C. Cabot and Miss Ida Cannon 18
Tropical Dermatology. Professor R. P. Strong and Dr. H. P. Towle 19
Tuberculosis. Dr. J. B. Hawes, 2d 30
Venomous Animals. Dr. Thomas Barbour 26

Group IX. Courses in Medical and Other Sciences

In addition to the courses and lectures given in the above lists other courses are open to students registered in the School for Health Officers at the Massachusetts Institute of Technology, at Harvard College, at the Harvard Medical and Harvard Dental Schools.

At the Harvard Medical School there are courses in Anatomy, Embryology, Physiology, Biological Chemistry, Pathology, and Bacteriology.

At the Massachusetts Institute of Technology there are courses in General Physiology, Physiological Laboratory, Vertebrate Anatomy, Sanitary Engineering, General Biology, and Bacteriology.

For the details of these courses the catalogues of Harvard University and the Massachusetts Institute of Technology should be consulted. Information regarding them may also be obtained from the Director of the School for Health Officers.

DESCRIPTION OF COURSES*

Group I. Preventive Medicine

1. *Principles of Sanitary Science and Public Health.* (Course, M. I. T. 754.)

For Graduates and Undergraduates.

Given at 6 Lowell Building, Clarendon St., Boston.

Professors W. T. Sedgwick and S. M. Gunn.

One lecture weekly in the second half-year, illustrated by stereopticon, diagrams, and charts. First principles of health and disease, ancient and modern theories, parasitism, vital resistance, immunity, and preventive sanitation. The ground covered is essentially that in Sedgwick's "Principles of Sanitary Science and the Public Health."

2. *Preventive Medicine and Hygiene.*

For Graduates and Undergraduates.

Tuesday, and Thursday, from 2 to 3 P.M., and Wednesday, from 3 to 5 P.M., second half-year.

Given at the Harvard Medical School, Lecture Room, Bldg. E.

Professor M. J. Rosenau.

This is a general course, consisting of lectures and demonstrations, and laboratory work designed to give a bird's-eye view of the important facts and principles in preventive medicine. The subjects covered are those found in Rosenau's "Preventive Medicine and Hygiene."

3. *Public Health Problems.* (Course, M. I. T. 750.)

For Graduates and Undergraduates.

Given at 30 Trinity Place, Boston.

Professors W. T. Sedgwick and S. M. Gunn.

Once a week throughout the year.

Conferences on current problems in Hygiene and Sanitation, with discussions of the origin and trend of the underlying principles of Sanitary Science, Public Health, and Vital Statistics.

4. *Epidemiology.* (Course, M. I. T. 751.)

For Graduates only.

Given at 30 Trinity Place, Boston.

Professor W. T. Sedgwick.

One hour weekly in the first half-year, devoted to a detailed consideration of the natural history of epidemics, especially typhoid fever,

*Tabular Views, showing the hours of subjects at the Institute of Technology, may be obtained at the office of the Institute, 491 Boylston St., Boston, one week before the beginning of each term.

tuberculosis, scarlet fever, etc., in reference to public water supplies, milk supplies, and similar causative factors; the intention being to enable the student by a critical consideration of instructive examples to prepare himself for the interpretation of corresponding cases arising in public health practice.

5. *Infant Mortality.*
For students registered in the School for Health Officers.
Four lectures on dates to be announced.
Given at the Harvard Medical School, Amphitheatre, Bldg. E.
Professor JOHN LOVETT MORSE.

These lectures will take up the statistics of infant mortality, the social, economic, and medical problems involved, the causes, and methods of prevention, the means at present in use to combat infant mortality, and the possibilities for their extension in the future. An opportunity will be given to study the work actually being done in this direction in Boston at present.

6. *Genetics and Eugenics.*
For students registered in the School for Health Officers.
Monday, Wednesday, and Friday, from 9 to 10 A.M., second half-year.
Given in the Zoölogical Lecture Room, Harvard University, Cambridge.
Professor W. E. CASTLE.

The reproduction of animals, the origin of new races; the influence of heredity and of environment; applications to animal breeding and human society.

7. *Social Service Work in its Relation to the Work of the Public Health Officer.*
For students registered in the School for Health Officers.
To be given at the Harvard Medical School and at the Massachusetts General Hospital, Blossom Street, Boston, on dates to be announced.
Professor RICHARD C. CABOT, and Miss IDA CANNON.

Four exercises will be devoted to this subject. The first exercise will outline, in a general way, the scope of the work. In the others the records of patients, illustrating problems in industrial disease, contagious disease, and nervous and mental troubles, and chronic illnesses, will be studied. The course will also include actual demonstrations of social service work.

8. *General Course in Tropical Medicine.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)

Given at the Harvard Medical School on dates to be announced.
Professor Richard P. Strong.

This course will include lectures, laboratory, and bedside demonstrations, with particular reference to the following diseases: — Dysenteries, psilosis, dengue fever, yellow fever, beriberi, epidemic dropsy, pellagra, leprosy, cholera, malta fever, typhus, plague, yaws, verruga peruviana, malaria, blackwater fever, sleeping sickness, kala azar and infantile leishmaniasis, African tick fever, tsutsugamushi disease, liver abscess, filariasis including dracontiasis, uncinariasis, bilharzia and katayama disease, endemic haemoptysis and the psychoses commonly encountered in tropical countries. In connection with this course, when material is available, clinical demonstrations and lectures, with particular reference to the surgical treatment of liver abscess, elephantiasis, splenomegaly and bilharziosis, will be given by the Surgical Department of the Medical School.

9. *Tropical Dermatology.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Given at the Harvard Medical School on dates to be announced.
Professor Richard P. Strong.

This course will include the study of the lesions of the skin, with particular reference to the following diseases and conditions: — Pemphigus, contagiosus, the various epidermaphyton and trichophyton infections common in the tropics, pinta disease, blastomycoses, cutaneous and subcutaneous myiasis, cermatophiliasis, oriental sore, tropical sloughing, phagedaena, velct sore, ulcerating granuloma, yaws, verruga peruviana, leprosy, madura foot, pellagra, craw-craw, leucoderma, prickly heat, ground itch, and guinea-worm infection.

Group II. Personal Hygiene

1. *Personal Hygiene.*
For students registered in the School for Health Officers.
Six lectures given at the Harvard Medical School, Amphitheatre, Bldg. E, on dates to be announced.
Professor W. B. Cannon.

The topics covered are as follows: —

1. *Exercise.* Physiological elements involved. Effects of exercise on circulation, respiration, excretion, temperature, digestion, metabolism, and structure. Results of exercise favorable to health. Injurious effects of exercise.

2. *Fatigue.* Seats of fatigue. Nature of fatigue — probable causes. Effects of various conditions on fatigue. Some manifestations of fatigue.

3. *Rest.* Relation to activity. Natural periods of rest. Sleep. Differences in bodily needs in rest and activity. Metabolism. Uses of rest.

4. *Bathing.* Varieties of baths. Physiological effects of various baths. Times of bathing, in relation to exercise, sleep, and eating.

5. *Clothing.* Uses of clothing. Importance of texture in different conditions. Texture of clothing materials. Selection of clothing for various purposes.

6. *Diet.* Bodily demands for nourishment. Different values of food. Considerations regarding choice of food. Conditions influencing the amount of food required.

2. *Personal Hygiene.* (Course, M. I. T. 723.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Dr. P. G. Stiles.

Lectures once a week during the second half-year. Designed to give an accurate idea of the operation and care of the human mechanism.

3. *Industrial Hygiene and Sanitation.* (Course, M. I. T. 752.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor S. M. Gunn.

Twice a week in the first half-year. The prejudicial effects of factory life upon health, including occupational accidents, industrial poisonings, etc.

4. *School Hygiene.*
For students registered in the School for Health Officers.
Three lectures given at the Harvard Medical School, on dates to be announced.
Dr. Thomas F. Harrington, formerly Director of Department of School Hygiene of the City of Boston.

I. *School Hygiene.* The problem of health and education. The organization and administration of the Department of School Hygiene, — its scope, methods, and opportunities for applying preventive medicine.

II. *Sanitation.* Lighting, heating, seating, ventilation, humidification, environment. Medical supervision, — school physicians, school nurses, school clinics, home and school coöperation. The Teaching of

Physiology and Hygiene, — hygiene instruction, the curriculum. Vocational Hygiene. Massachusetts Laws Relative to Health and Education.

III. *Physical Education,* — school athletics, playgrounds, military drill. Special Classes for Defectives, — methods of testing — Binet, hearing and vision. Open air classes. Hospital classes. Retarded pupils. Speech defectives. Extension of school hygiene into home, industries, community. Some results.

In addition to these three lectures, opportunity will be offered the students to visit the schools to see the conditions and practical methods employed, and to study the special schools.

5. *Mental Hygiene.*

For students registered in the School for Health Officers.

Six lectures given in the Assembly Room of the Psychopathic Hospital, 74 Fenwood Road, Boston.

Dr. E. E. Southard, Professor of Neuropathology, Harvard Medical School, and Director of the Psychopathic Department, Boston State Hospital, and associates.

6. *Posture and the Prevention of Deformities.*

For students registered in the School for Health Officers.

Four lectures given at the Children's Hospital on dates to be announced.

Professor R. W. Lovett.

A course of four exercises, consisting of lectures and clinical demonstrations. The subjects considered will be: —

Mechanics of correct and incorrect posture — center of gravity of the body. Conditions promoting correct posture. Conditions promoting incorrect posture. Influence of incorrect posture on the general condition (in children — in adults). Antero-posterior defects in posture (round shoulders, hollow back). Lateral defects in posture (lateral curvature, postural and structural). Relation of school life to lateral curvature of the spine (school furniture). Treatment of all forms of incorrect posture (school treatment, home treatment, treatment by physicians). Flat foot and weak ankles.

7. *Ocular Hygiene.*

For students registered in the School for Health Officers.

Three lectures given at the Harvard Medical School, Amphitheatre, Bldg. E, on dates to be announced.

Dr. F. H. Verhoeff and Dr. Louis Bell.

This course will consist of two lectures as follows: —

1. Elementary optical principles. Tests for visual acuity. Tests for strabismus. Effects of eye-strain. School myopia. Paper and type for school books.

2. Diseases of the eye with which the health officer should be acquainted. Ophthalmia neonatorum, gonorrhoeal conjunctivitis in adults, phlyctenular conjunctivitis and keratitis, trachoma, epidemic conjunctivitis, diphtheritic conjunctivitis, toxic amblyopia from wood alcohol, etc. Relation of heredity and consanguinity to diseases of the eye.

3. Illumination.

8. *Oral Prophylaxis.*

For students registered in the School for Health Officers.

Three lectures given at the Harvard Medical School, Amphitheatre, Bldg. E, on dates to be announced.

Professor WILLIAM H. POTTER.

This course will consider the causes and prevention of certain diseases and irregularities of the teeth, and will include a discussion of school inspection and dental infirmaries.

9. *Hygiene of Ventilation and Heating.* (Course, M. I. T. 755.)

For Graduates and Undergraduates.

Given at 30 Trinity Place, Boston.

Professor W. T. SEDGWICK.

Lectures and reports once a week in the first half-year. The regulation of the body temperature, the sources and remedies of discomfort due to bad air, overheating, overcrowding, etc., in private rooms and public halls.

GROUP III. HEALTH ADMINISTRATION

1. *Public Health Methods.*

Required of all students registered in the School for Health Officers.

A comprehensive course in the principles and practice of public health methods.

2. *Practical Health Administration.*

For students registered in the School for Health Officers.

Special Exercises arranged to be given at the State Department of Health, by Dr. ALLAN J. MCLAUGHLIN, Dr. EUGENE R. KELLEY, Mr. H. C. LYTHGOE, and other Directors of Divisions.

This course is largely of a practical nature and includes the following topics: —

The State Administration of: Water supply and sewerage; food and drugs; state inspectors of health; cold storage; slaughtering; milk; rendering plants; water companies; sanatoria; prisons; police stations; the Administrative Control of Diseases Dangerous to the Public Health.

3. *Sanitary Law.* (Course, M. I. T. 762.)

For Graduates and students of the School for Health Officers.

Given at 30 Trinity Place, Boston.

Professors W. T. SEDGWICK, S. C. PRESCOTT, R. S. WESTON, and S. M. GUNN.

One lecture weekly in the second half-year. Preparation required, M. I. T. Courses 750, 753, 754.

4. *Sanitary Law — Legal Powers of Health Officers.*

For students registered in the School for Health Officers.

Tuesdays and Thursdays in April.

Given at the Harvard Medical School, Amphitheatre, Bldg. E.

Professor EUGENE WAMBAUGH.

This is a course of six exercises and will cover the powers and responsibilities of health officers from the point of view of the law.

5. *Medical Inspection of Aliens.*

For students registered in the School for Health Officers.

Friday, from 5 to 6 P.M., March 19 and 26. Dates for practical exercises to be arranged with the Instructor.

The lectures will be given at the Harvard Medical School, Amphitheatre of Bldg. E ; the practical exercises at the steamship wharves.

Dr. M. V. SAFFORD.

This course will consist of two lectures, followed by practical exercises, to enable the students to observe the methods adopted at large ports of entry for conducting the medical examination of arriving alien passengers required by the United States Immigration Laws. Dr. SAFFORD'S office is at the U. S. Immigration Station, Long Wharf, Tel. No. Main 380 or Main 381. Arrangements should be made with Dr. SAFFORD for the practical exercises.

6. *Municipal Sanitation.*

For students registered in the School for Health Officers.

Three or more lectures given at the Harvard Medical School, Amphitheatre, Building E, on dates to be announced.

Dr. Charles V. Chapin, Superintendent of Health, Providence, R. I.

1. Efficiency of public health measures.
2. Public Health Education.
3. Nuisance problems.

7. *Municipal Sanitation.* (Course, M. I. T. 753.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor S. M. Gunn.

Four hours a week in the second half-year. Detailed consideration of the principles of water supply, sewage, and garbage disposal, air, milk and meat supply, disinfection and other work of municipal Boards of Health.

8. *Sanitation of Houses and Public Buildings.* (Course, M. I. T. 758.)
For Graduates and students of the School for Health Officers.
Given at 30 Trinity Place, Boston.
Professor S. M. Gunn.

One hour a week in the second half-year. A study of the sanitary aspects of the housing problem as found in American cities today.

9. *Public Health Administration.* (Course, M. I. T. 763.)
For Graduates only.
Given at 30 Trinity Place, Boston.
Professor S. M. Gunn.

Lectures once a week in the second half-year.

10. *Legal Medicine.*
For students registered in the School for Health Officers.
Given at Harvard Medical School on dates to be announced.
Dr. George B. Magrath.

This course deals with medicine in its relation to the requirements of law. Further details are given in the catalogue of the Harvard Medical School.

Group IV. Sanitary Biology and Sanitary Chemistry

1. *Protozoölogy.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Given at the Harvard Medical School during October on dates to be announced.
Professor E. E. Tyzzer.

The course in Protozoölogy will include a general discussion of the morphology and life history of the more important human protozoan parasites, such as the amoebae, flagellata, sporozoa, and ciliata. Their relations to their definite and to intermediate hosts will also be discussed, together with phenomena of immunity. Methods for the cultivation of certain parasites and suitable procedures for collecting, staining, and mounting will be discussed.

2. *Entomology.*

(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)

Given at the Harvard Medical School on dates to be announced.

Professor WILLIAM M. WHEELER and Asst. Professor C. T. BRUES.

This course will consist of a few general lectures on the structure and classification of the Arthropoda, followed by a more detailed account of the Arthropoda known to be concerned and likely to be concerned in the transmission of human and animal diseases or in the infliction of local injuries and physiological disturbances.

Laboratory work and demonstrations will also constitute an important feature of the course and will provide for training in the dissection of insects, in the principal methods of studying their life histories and habits, and in their identification by means of dichotomic tables and from technical descriptions. The student will be provided with a list of most useful monographs and reference books on blood-sucking and disease-disseminating arthropoda and should acquire an extensive acquaintance with this literature.

The following orders, families and genera will be considered: —

1. Insecta, with particular reference to the diptera, suctoria, siphunculata, hemiptera, hymenoptera, and lepidoptera.
2. Myriopoda, including the scolopendridae.
3. Arachnida, including the scorpionidea, araneina, and acari.

3. *Advanced Bacteriology.* (Course, M. I. T. 734.)

For Graduates and Undergraduates.

Given at 30 Trinity Place, Boston.

Mr. E. A. INGHAM.

Three hours weekly in the first half-year. Preparation required, M. I. T. Course 730.

4. *Elementary and General Bacteriology.*

For Students in the School for Health Officers.

Daily except Saturday during October and November from 2 to 5.30 P.M.

Given at the Harvard Medical School.

Professors HAROLD C. ERNST, S. B. WOLBACH, and others.

5. *Dairy Bacteriology.* (Course, M. I. T. 736.)
Open to Graduates and students of the School for Health Officers.
Given at 30 Trinity Place, Boston.
Professor S. C. PRESCOTT.

Four hours weekly in the first term. Chiefly laboratory work. Preparation required, M. I. T. Courses 732, 733, 736, and 753.

6. *Bacteriology of Water and Sewage.* (Course, M. I. T. 731.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor S. C. PRESCOTT.

Given in the first half-year and repeated in the second. Two hours a week. An extension of the M. I. T. course (No. 17 below) in General Bacteriology with application to Sanitary Chemistry and Sanitary Engineering. Preparation required, M. I. T. Course 730.

7. *Zoölogy and Parasitology.* (Course, M. I. T. 713.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor R. P. BIGELOW.

Two hours weekly in second half-year. Lectures and demonstrations with special reference to animal parasites, and their relation to diseases in man and the domestic animals. Preparation required, M. I. T. Course 704 (Invertebrate Zoölogy).

8. *Helminthology.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Tuesdays and Thursdays in December, 2 to 5 P.M.; Tuesdays, Thursdays, and Saturdays, in January, 9 A.M. to 12 M.
Given at the Harvard Medical School.

The course in Helminthology will include the differentiation and classification of species and instruction in collecting, preserving, staining, and mounting of the parasites and their ova, and the cultivation of the parasites when possible. The human cestodes, tremadoes, and nematodes will be considered in detail. Certain species of the acanthocephala, the pentastomida and hirudinea will also be discussed.

9. *Venomous Animals.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Monday, Wednesday, and Friday, from 10 to 11 A.M., March, and 11.30 A.M. to 12.30 P.M., April.

Given at the Zoölogical Museum, Room 15, Cambridge.
Dr. Thomas Barbour, Curator of Oceanica, and Associate Curator of Reptiles and Amphibians in the Museum of Comparative Zoölogy, Harvard University.

In this course the poisonous snakes, reptiles, scorpion, fish, coelenterates and amphibians will be demonstrated. The poisonous effects produced by them and the methods of treatment also will be considered.

10. *Poisonous Plants of the Tropics.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Tuesday and Thursday, from 2 to 3 p.m.; Saturday, from 10 a.m. to 12 m., March.
Given at the Harvard Medical School.
Professor W. J. V. Osterhout.

This course will consist of lectures and demonstrations on the more important poisonous plants of the tropics and the effects produced by them.

11. *Analysis of Water, Sewage, and Air.*
For students in the School for Health Officers.
Hours to be arranged with the instructor. 18 hours a week. First half-year.
Given at Pierce Hall, Oxford Street, Cambridge.
Mr. Melville C. Whipple.

This is a comprehensive course in the physical, chemical, microscopical, and bacteriological analysis of water, sewage, and air, and covers the subject in a detailed manner. It is intended for those who wish to obtain a working knowledge of water and sewage analysis sufficient to enable them to secure positions in this field of work.

A general knowledge of the principles of qualitative and quantitative analysis is prerequisite.

12. *Water and Air Analysis.* (Course, M. I. T. 520.)
For Graduates and Undergraduates.
Given at 525 Boylston Street (Room 36), Boston.
Professor J. F. Norton.

Three hours weekly in the first half-year. A course in Sanitary Chemistry. Preparation required, M. I. T. Course 512 (Quantitative Analysis).

13. *Water Supplies and Waste Disposal.* (Course, M. I. T. 522.)
For Graduates and Undergraduates.
Given at 525 Boylston Street (Room 36), Boston.
Professor J. F. Norton.

One lecture and two laboratory hours weekly on the chemical problems of water supply, water purification, and the disposal and purification of wastes. Preparation required, M. I. T. Course 520.

14. *Climatology.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Given at Cambridge on dates to be announced.
Professor Robert DeCourcy Ward.

This course will include a discussion of climate in general. The elements of climate; temperature; moisture; wind; pressure; evaporation; composition of the atmosphere. The methods of recording and the hygienic importance of these elements. Controls of climate; latitude; land and water (continental and marine climates); altitude (mountain climates); exposure; prevailing winds; ocean currents; mountain barriers; soil; vegetation. Classification of climates. Characteristics of tropical climates (trade wind deserts; mountain climates; monsoon climates, etc.). Acclimatization and hygiene of the white race in the tropics. The climatologist's view of the relations between climate and disease. The life of man in the tropics, as controlled by tropical climates.

15. *Food Analysis.* (Course, M. I. T. 525.)
For Graduates and Undergraduates.
Given at 525 Boylston Street (Room 36), Boston.
Professor A. G. Woodman.

Seven lectures and thirty-eight hours of laboratory work in the first or second half-year. Dealing with the character, purity, and nutritive value of common food materials and food adulteration. Preparation required, M. I. T. Course 512 (Quantitative Analysis).

16. *Advanced Food Analysis.* (Course, M. I. T. 526.)
For Graduates and Undergraduates.
Given at 525 Boylston Street (Room 36), Boston.
Professor A. G. Woodman.

Five hours a week of laboratory work and class-room exercises in the first half-year. Methods of attacking chemical problems arising under state and municipal food control. Food inspection and criticism of methods of food analysis. Preparation required, M. I. T. Course 525.

17. *General Bacteriology.* (Course, M. I. T. 730.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor S. C. Prescott.

Given in the first half-year and repeated in the second. Five hours a week. A general survey of the bacteria and their behavior. A prerequisite for all M. I. T. work upon sewage disposal, water supply, and other public health problems. Preparation required in physics and chemistry.

18. *Elementary Bacteriology.* (Harvard University, S2.)
For Graduate and Undergraduate Students.
Mondays, Wednesdays, Fridays at 9 A.M. and laboratory work, 6 hours a week.
Given at Pierce Hall, Oxford Street, Cambridge, Mass., during first term.
Mr. MELVILLE C. WHIPPLE.

This is a course for students who have never studied bacteriology, but who wish to obtain a general understanding of the relation of bacteria to the processes of nature, to chemistry, sanitary science, and the public health. The subject-matter of the course will include the technique of isolation and identification of species, the examination of soil, water, and foods; bacteria in the industries; communicable diseases, diagnosis and methods of prevention; fermentation, sewage treatment, sludge disposal, and water purification.

GROUP V. SPECIAL PATHOLOGY

1. *Pathology of Tropical Diseases.*
(Offered by the School of Tropical Medicine, and open to students registered in the School for Health Officers.)
Given at the Harvard Medical School on dates to be announced.
Professor F. B. MALLORY.

This course will include the study of the macroscopic and histological lesions in the following diseases: — Beriberi, pellagra, malaria, trypanosomiasis, kala azar, African tick fever, yellow fever, blackwater fever, plague, malta fever, cholera, dysentery, liver abscess, sprue, leprosy, yaws, verruga peruviana, ulcerating granuloma, oriental sore, tropical ulcers, gangosa, trematodal infection of the lungs and liver, filarial infection, uncinariasis, elephantiasis, and mycetoma.

GROUP VI. COMMUNICABLE DISEASES

1. *Communicable Diseases — Clinical Course.*
For qualified students registered in the School for Health Officers.
Afternoons during January, 2 to 5 o'clock.
Given at the South Department, Boston City Hospital, 745 Massachusetts Avenue.

Dr. Edwin H. Place, Assistant Professor of Pediatrics, Harvard Medical School, and Physician-in-Chief, South Department, Boston City Hospital.

This course offers an opportunity for the study of the more common contagious diseases, more especially measles, scarlet fever, diphtheria, whooping cough, etc. Their recognition, variation, complications, manner of spread and treatment will be studied at the bedside and in short conferences after the ward visits. The results of treatment and management will be considered both from series of cases in the wards, and from the incidence and mortality in the city as a whole.

2. *Communicable Diseases. — Interneship.*

For qualified students registered in the School for Health Officers.

One to four months, as arranged by agreement.

South Department, Boston City Hospital, 745 Massachusetts Ave.

Open to a limited number of specially qualified students, by arrangement with Professor E. H. Place.

3. *Tuberculosis.*

For students registered in the School for Health Officers.

Given at the Harvard Medical School on dates to be announced.

Dr. John B. Hawes, 2d, Secretary, Board of Trustees, Massachusetts Hospitals for Consumptives.

The course will consist of six exercises, in which the following points relating to this disease and methods of control and administration will be taken up. Opportunity will be given for those taking this course to become acquainted with the practical workings of the State organization; visits will be made to tuberculosis dispensaries, municipal tuberculosis hospitals, and State sanatoria.

1. General survey of the tuberculosis problem in Massachusetts. Methods of computing the total number of cases and the number of cases needing treatment in any community. Progress made during the last twenty-five years.

2. Survey of the more important laws relating to tuberculosis and the different problems connected with these laws. Survey of the methods adopted by Massachusetts in controlling tuberculosis.

(*a*) Educational, including large travelling exhibits, small portable exhibits, school exhibits, the use of the public press, moving pictures, and lectures, practical methods of arousing popular interest in tuberculosis in any given community.

(*b*) Statistical, including the reporting and recording of cases.

(*c*) Laboratory diagnosis; free sputum examinations.

(*d*) Institutional control.

3. State institutions for consumptives.

Under this heading will be given a description of the Massachusetts State Sanatoria, methods of administration, admission of patients, and problems connected with the same.

4. Tuberculosis in cities and towns. The municipal control of the disease. In this lecture the tuberculosis problem in the large city, the smaller cities and towns, and the rural districts will be considered.

5. Tuberculosis and the medical profession. Early diagnosis; reporting of cases; coöperation between health officers and local boards of health and the medical profession; coöperation between health officers, voluntary tuberculosis associations, and the medical profession; need of education among doctors as well as the laity.

6. Tuberculosis in schools. The problem of fresh air rooms and outdoor schools. Tuberculosis in factories and work-shops. Tuberculosis in milk. Need of coöperation of all forces.

4. *Biology of Infectious Diseases.* (Course, M. I. T. 735.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor S. M. Gunn.

Two hours a week in the first half-year in the biological characteristics of trichinosis, typhoid fever, tuberculosis, Asiatic cholera and some other infectious diseases of special interest to the sanitarian.

5. *Board of Health Laboratory Diagnosis.*
For students registered in the School for Health Officers.
Dates are to be arranged for personally with the Instructor.
Given at the Bacteriological Laboratory, City Hall Annex, Boston.

This course will enable small groups of students to observe the routine work of a bacteriological laboratory, and, if properly qualified, to participate in it.

6. *Public Health Laboratory Methods.* (Course, M. I. T. 736.)
For Graduates and Undergraduates.
Given at 30 Trinity Place, Boston.
Professor S. M. Gunn and associates.

Three hours a week in the second term upon methods for cultural diagnosis of diphtheria, tuberculosis, the Widal reaction, and microscopical work upon malaria, etc. Preparation required, M. I. T. Course 730.

Group VII. Sanitary Engineering

1. *Sanitary Engineering.* (Courses, M. I. T. 177 and 178.)
Three exercises a week throughout the year.
Given at Engineering A, Trinity Place, Boston.
Professor Whipple and assistants.

This is a general course in the principles and practice of sanitary engineering and covers the entire subject in a comprehensive manner by means of lectures, recitations, assigned reading, excursions, etc.

2. *Municipal Administration.* (Harvard University, Government 31.)
For students registered in the School for Health Officers, and for Harvard Graduates and Undergraduates.
Monday, Wednesday, Friday, at 11 A.M., throughout the year.
Given at Cambridge.
Professor Whipple and assistants.

This course will deal with the underlying principles of sanitary engineering and municipal sanitation. The topics considered will include city planning, housing, fire prevention, street paving, public water supplies and water purification, the pollution of streams, methods of sewage disposal, garbage disposal, street cleaning, hygienic housing, plumbing, ventilation, the effect of insanitary conditions on the public health. Attention will be given to the operation, cost, and efficiency of works rather than to construction, but important works in America and in Europe will be described.

There will be two lectures and one class exercise a week.

Reports upon assigned topics will be required.

A general knowledge of physics and chemistry is required of students in this course, as well as a reading knowledge of French and German.

3. *Research in Sanitation.* (Harvard University, Hygiene and Sanitation, 20*a*.)
Professor Whipple.

Special investigations in the Laboratory of Sanitary Engineering, Pierce Hall, Cambridge, may be undertaken by students in the School for Health Officers by arrangement with the instructor.

4. *Theory and Practice of Water and Sewage Purification.* (Course, M. I. T. 760.)
For Graduates only.
Given at 30 Trinity Place, Boston.
Professor R. S. Weston and Mr. C. E. Turner.

Two hours a week throughout the year. Preparation required, M. I. T. Courses 731, 753, 754.

Group VIII. Demography

1. *Vital Statistics.* (Course, M. I. T. 190.)
Open to students in the School for Health Officers.
Given at the M. I. T.
Professor Whipple.

A course of two hours per week in the first term in vital, social, and sanitary statistics arranged especially for students who intend to enter the public health service. It will treat of the principles of statistics, population, registration, births and marriages, general death rates, corrected death rates, specific death rates, morbidity, causes of death, preparation of tables, plotting, construction of diagrams, graphical display of data, and, in general, the application of statistics to state and municipal problems.

GRADUATES AND STUDENTS IN THE SCHOOL

1914–15

Allen, Andrew Foster, S.B., C.P.H. City Hall, Waltham.

S.B. in Sanitary Engineering (*Massachusetts Institute of Technology*) 1912, C.P.H. (*School for Health Officers*) 1915.

Laboratory Assistant and Watershed Inspector, Water Department, Hartford, Conn., 1912–13.

Agent, Waltham Board of Health, March, 1915–.

Boyd, Mark Frederick, M.D., S.M., C.P.H.

M.D. (*University of Iowa*) 1911, S.M. (*ibid.*) 1913, C.P.H. (*School for Health Officers*) 1914.

Bacteriologist, Laboratory, Iowa State Board of Health, 1911–12.

Health Officer and City Bacteriologist, Oskaloosa, Ia., 1912–13.

State Dairy and Food Inspector for Oskaloosa, Ia., 1912–13.

Charles Follen Folsom Teaching Fellow in Hygiene, Department of Preventive Medicine and Hygiene, Harvard Medical School, 1913–14.

Associate Professor of Bacteriology and Hygiene, University of Nevada, Reno, Nev., 1914–15.

Director, State Hygienic Laboratory, University of Nevada, Reno, Nev., 1914–. Member of the State Board of Health.

Brown, Walter Henry, M.D., C.P.H. 1137 Mass. Ave., Cambridge.

M.D. (*Jefferson Medical College*) 1906, C.P.H. (*School for Health Officers*) 1915.

In practice, 1906–14.

Medical Inspector of Schools (*Pennsylvania State Department of Health*), 1912–14.

Acting Epidemiologist (*Massachusetts State Department of Health*), June, 1915–.

Brown, William Eustis, Ph.B., C.P.H. York Village, Maine.

Ph.B. (*Lafayette College*) 1909, C.P.H. (*School for Health Officers*) 1915.

Private teaching, 1909–12.

Law student, Columbia University, 1912–13.

Resident, South End House, 1914–15.

Health Officer, Town of York, Maine, 1915–.

Cole, Ralph Waldo Emerson, M.D., C.P.H. Falmouth, Mass.

M.D. (*Tufts College Medical School*) 1906, C.P.H. (*School for Health Officers*) 1915.

Interne: — Elliot Hospital, Manchester, N.H.; Passaic General Hospital, Passaic, N. J.; N. Y. Orthopaedic Dispensary and Hospital, New York, N. Y.; U. S. Marine Hospital, Stapleton, N. Y.; July 5, 1906, to February 11, 1909.

Ship Surgeon: — N. Y. and Cuba Mail S.S. Co. February 11, 1909, to May 1, 1909.

Practice-associate: — May 1, 1909, to November 15, 1909.

Surgeon: — U. S. Coast and Geodetic Survey, November 22, 1909, to July 10, 1913 (duty in Philippine Islands).

Cornelius, Albert Franklin, M.D., C.P.H. Berea, Ky.

M.D. (*Hospital College of Medicine, Louisville, Ky.*) 1906, C.P.H. (*School for Health Officers*) 1915.

In practice, 1906–14.

Sanitary Inspector, American Red Cross Sanitary Commission in Serbia, May, 1915–.

Champion, Merrill Edwin, A.B., M.D., C.P.H. 50 Phillips St., Wollaston.

A.B. (*Harvard University*) 1902, M.D. (*ibid.*) 1906, C.P.H. (*School for Health Officers*) 1914.

Medical Superintendent, Florence Crittenton Maternity Home, Watertown, Mass., 1908–10.

Bacteriologist, Symmes Hospital, Arlington, 1912–.

Junior Physician, Symmes Hospital, Arlington, 1912–.

Physician and Bacteriologist, Board of Health, Arlington, 1913–.

Assistant Director, Hookworm Commission (Rockefeller Sanitary Commission), North Carolina State Board of Health, 1915–.

District Health Officer, (Mass.) State Department of Health, 1915.

Harmon, Gaius Elijah, M.B., M.D., C.P.H. 1353 E. 9th St., Cleveland, O.

M.B. (*Boston University*) 1908, M.D. (*ibid.*) 1909, C.P.H. (*School for Health Officers*) 1914.

House Officer, State Sanatorium, Rutland, Mass., 1909.

House Officer, Newton (Mass.) Hospital, 1909–10.

Pathologist, State Hospital for the Insane, Norwich, Conn., 1910–12.

Graduate student, Department of Biology and Public Health, Massachusetts Institute of Technology, 1912–13.

Instructor in Hygiene and Bacteriology, School of Medicine, Western Reserve University, 1914–.

Holt, William Leland, A.B., M.D., C.P.H. Maplewood, N. J.

A.B. (*Harvard University*) 1901, M.D. (*ibid.*) 1905, C.P.H. (*School for Health Officers*) 1914.

Austin Teaching Fellow in Comparative Pathology, Harvard Medical School, 1905–06.

Graduate student, University of Freiburg, Germany, 1907, 1910–13.

In practice, 1908–10.

Assistant Bacteriologist to Florida State Board of Health, September, 1914, to March, 1915.

Health Officer, South Orange Township, N.J., 1915–.

Horan, Charles F. 41 St. Botolph St., Boston.

Instructor in Chemistry and Physics, Johnstown (Pa.) High School, 1911–12.

Special courses in Chemistry, University of Pittsburgh, 1912–13.

Pathologist, Mercy Hospital of Johnstown, 1911–15.

Consulting Pathologist, Johnstown City Hospital, 1913–14.

Consulting Bacteriologist and Food Chemist, Infant Welfare Commission, Johnstown, 1914.

Toxicologist, Coroner's Office, Cambria County (Pa.), 1912–15.

Student, School for Health Officers, 1914–15.

Agent of the Board of Health, Watertown, Mass.

Ingham, Edward Alexander, S.B. 316 Huntington Ave., Boston.

S.B. in Chemistry (*Washburn College*) 1911.

High school teaching (Chemistry and Physiology), 1911–12.

Graduate student, Department of Biology and Public Health, Massachusetts Institute of Technology, 1912–13.

Assistant in Bacteriology, Johns Hopkins University, 1913.

Assistant in Biology and Public Health, M. I. T., 1913–14.

Research Assistant, Sanitary Research Laboratory, M. I. T., 1913–14.

Instructor in Biology and Public Health, M. I. T., 1914–.

Research Associate, Sanitary Research Laboratory, M. I. T., 1914–.

Lecturer in Hygiene, Tufts College Medical School, 1914–.

Editorial Assistant, *American Journal of Public Health*, 1913–.

Student, School for Health Officers, 1914.

Herbert Wilcox Knight, M.D. Mansfield, Pa.

M.D. (*Baltimore Medical College*) 1903.

Examined and licensed in New York, Pennsylvania, and Maryland.

Special course, children's diseases, Nursery and Children's Hospital, Baltimore, Md., 1903.

Children's Department, Maryland General Hospital, 1903–04.
In practice, 1903–12.
Practice in Tropical Africa, 1912–14.
Student, School for Health Officers, 1914–15.

McDonald, William Joseph, A.B., M.D., C.P.H. 47 Garrison R'd, B'kline.
A.B. (*Harvard University*) 1895, M.D. (*ibid.*) 1899, C.P.H. (*School for Health Officers*) 1915.
Graduate student, Department of Pathology, Harvard Medical School, 1899–1901.
In practice, 1900–14.

Mackler, Max, PHARM.D., PH.C. New Bedford.
PHARM.D. (*Massachusetts College of Pharmacy*) 1913, PH.C. research in Pharmaceutical Chemistry and Food Analysis (*ibid.*) 1914.
Research work in commercial drugs, Choate Drug and Chemical Company, 1913, 1914.
Research work in milk bacteria under the direction of Dr. C. G. Page of the Harvard Medical School.
Student, School for Health Officers, 1914–15.

Mendelson, Ralph Waldo, M.D.
M.D. (*Northwestern University Medical School*) 1911.
A.A. Surgeon, U. S. Navy, 1913–14.
Student, School for Health Officers, 1914–15, First Term.
Sanitary Inspector, American Red Cross.
Sanitary Commission in Serbia, May, 1915–.

Mitchell, Harold H.
B.S. (*Syracuse University*) 1914, M.D. (*ibid.*) 1914.
House Officer, South Department, Boston City Hospital, 1914.
Student, School for Health Officers, 1914–15.
Sanitary Inspector, American Red Cross Sanitary Commission in Serbia, May, 1915–.

Neagle, Harry Benjamin, A.B., M.D., C.P.H.
A.B. (*Bowdoin College*) 1899, M.D. (*Johns Hopkins University*) 1903, C.P.H. (*School for Health Officers*) 1914.
Assistant, Loomis Sanatorium, Loomis, N. Y., 1903–04.
Associate Physician, Loomis Sanatorium, 1904–08.

Osborn, Stanley Hart, M.D., C.P.H. 40 Holten St., Peabody, Mass.

M.D. (*Tufts College*) 1914, C.P.H. (*School for Health Officers*) 1915.
Graduate student, Department of Sanitary Engineering, Summer School, Harvard University, 1914.
Biologist, Metropolitan Water Board, Boston, 1914.
Sanitary Inspector, American Red Cross Sanitary Commission in Serbia, May, 1915–.

Platt, Philip Skinner, A.B., A.M. 105 E. 22d St., New York, N. Y.

A.B. (*Yale University*) 1912, A.M. (*ibid.*) 1913.
Graduate student, Department of Biology and Public Health, Massachusetts Institute of Technology, 1912–13.
Student, School for Health Officers, 1913–14.
Superintendent, Bureau of Public Health and Hygiene, Department of Social Welfare, N. Y. Association for Improving the Condition, 1914–.

Samper, Bernardo, B.A., M.D. Bogotá, Colombia, South America.

B.A. (*Colegio Mayor de Nuestra Senora del Rosario*) 1907, M.D. (*Facultad de Medicina, Universidad Nacional*) 1914.
Student, School for Health Officers, 1914–15.

Saville, Charles, S.B. 3612 Swiss Ave., Dallas, Texas.

S.B. (*Massachusetts Institute of Technology*) 1906.
Assistant Engineer, Mass. State Board of Health, 1904–10.
Assistant Engineer, Emscher Drainage Board, Essen, Germany, 1910–11.
Member of firm of Hering & Gregory, New York City, 1911–14.
Student, School for Health Officers, 1914–15, First Term.
Director of Sanitation, Dallas, Texas, 1915–.

Stuart, Edward, S.B.

S.B. (*Massachusetts Institute of Technology*) 1910.
Consulting Engineer, Oklahoma State Department of Health, Oklahoma City, 1910–11.
Engineer and Contractor, Oklahoma City, Okla., and Brookhaven, Miss., 1911–13.
Engineer, Caompantria Constructora de Santos, Santos, Brazil, 1913–14.
Student, School for Health Officers, 1914–15.
Sanitary Engineer, American Red Cross Sanitary Commission in Serbia, May, 1915–.

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